

# TickNet

## Lyme and Other Tickborne Diseases Prevention Study



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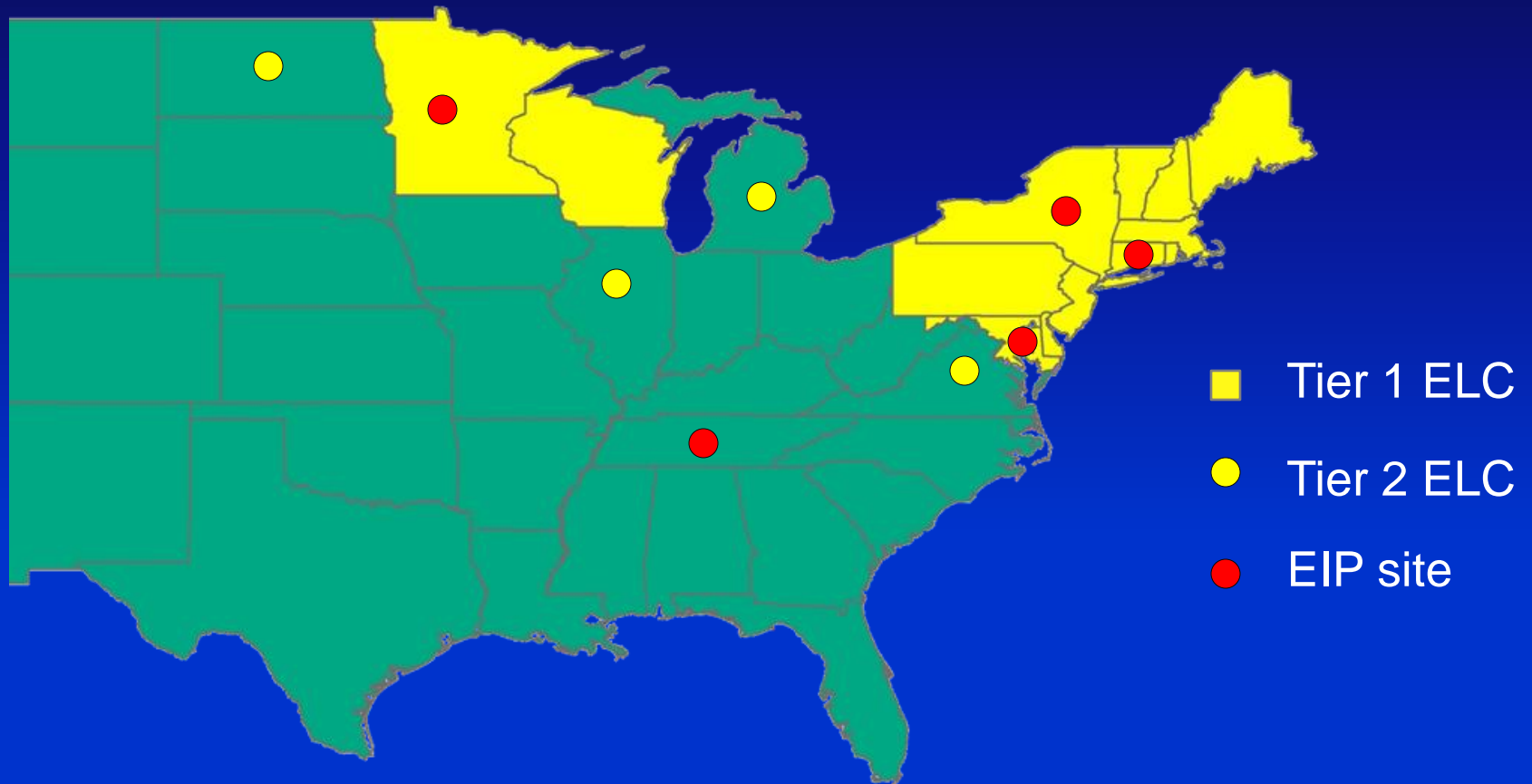


# TickNet

- ❑ Established in 2007 to foster coordination among public health officials on surveillance, research, education, and prevention of tickborne diseases
- ❑ Collaborators: state & local health departments, CDC DVBD, DPDM & Emerging Infections Program (EIP)
- ❑ Current extramural program goals:
  - Support and enhance surveillance (ELC)\*
  - Applied research (EIP)

# TickNet Extramural Funding 2010

\$1,876,346



# Current TickNet Research Projects

## ❑ Laboratory Survey (CT, MD, MN, NY)

Two stage survey to evaluate national testing volumes, test type, and rate of positivity among commercial, clinical and state laboratories for 5 tickborne diseases

# Current TickNet Research Projects

- ❑ Laboratory Survey (CT, MD, MN, NY)

- ❑ Underreporting Study (MD, MN, NY)

Quantify underreporting of physician-diagnosed Lyme disease and assess medical record coding practices

# Current TickNet Research Projects

- ❑ Laboratory Survey (CT, MD, MN, NY)
- ❑ Underreporting Study (MD, MN, NY)
- ❑ Active Surveillance for RMSF and Erythema Migrans in Western Tennessee (TN)  
Active surveillance to better define epidemiology and clinical features of spotted fever group rickettsioses and EM in four west-central Tennessee counties

# Current TickNet Research Projects

- ❑ Laboratory Survey (CT, MD, MN, NY)
- ❑ Underreporting Study (MD, MN, NY)
- ❑ Active Surveillance for RMSF and Lyme-like Illness in Western Tennessee (TN)
- ❑ Lyme and Other Tickborne Diseases Prevention Study (CT, MD, NY)

# Lyme and Other Tickborne Diseases Prevention Study

- ❑ *Not a pesticide or IPM trial*
- ❑ Randomized, blinded, placebo-controlled trial to assess the efficacy of a targeted, single, springtime application of a commercially available acaricide
- ❑ Primary outcome measure is **prevention of human illness** due to tickborne diseases

# Pesticides Kill Ticks

- ❑ Single application of granular deltamethrin reduced nymphal *I. scapularis* 95% at 9 days<sup>1</sup>
- ❑ Single spray application of bifenthrin (Talstar) significantly reduced *I. scapularis* nymphs, larvae, and adults up to 41 weeks post spray<sup>2</sup>

1. Schultze *et al.* Ent Soc Am 2001

2. Rand *et al.* J Med Ent 2010

# Substantial Minority of Households Use Chemical Pesticides to Kill Ticks

- ❑ 29% of 2,400 Connecticut households used within the previous year<sup>1</sup>
- ❑ 7% of 900 New England/Mid Atlantic households used currently<sup>2</sup>
- ❑ Applications up to 4 times per year

1. Gould *et al.* Vector-Borne Zoo Dis 2007  
2. CDC Unpublished data

# The Problem

Residential acaricide use has not been shown to reduce tickborne disease in humans

❑ If it doesn't work, people shouldn't use it

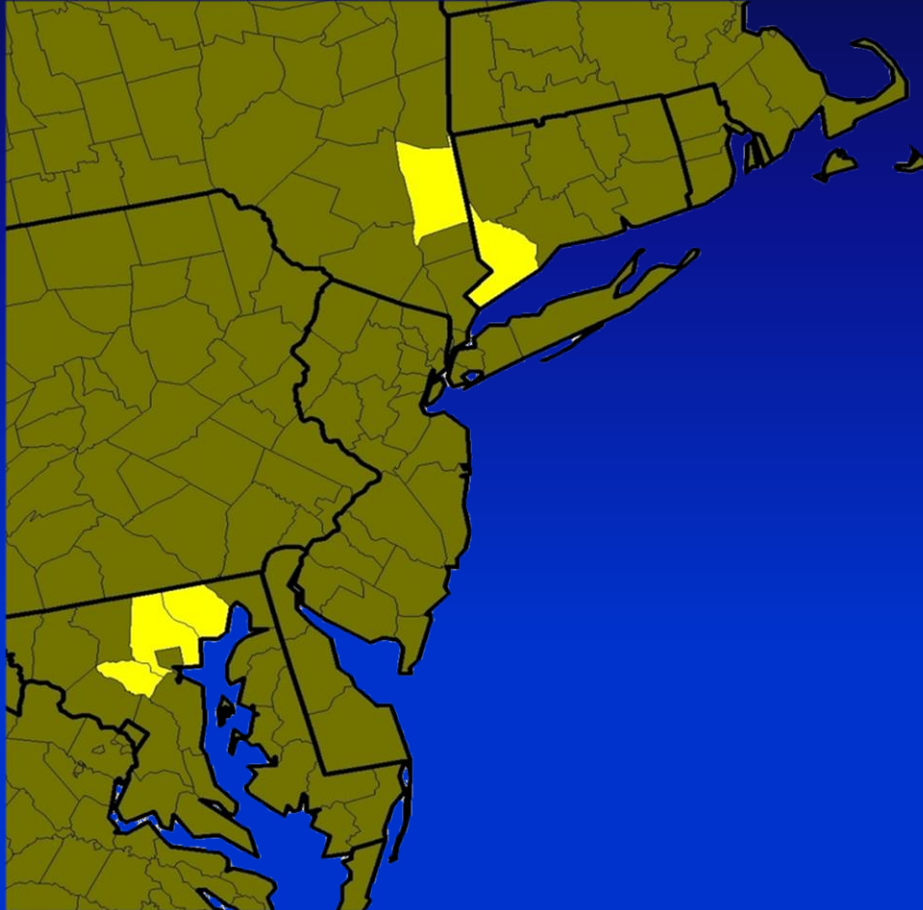
❑ If it does work...

- evidence to promote greater usage
- data need for cost/benefit analysis
- impetus for finding safer acaricides or other methods of yard-based control

# LTDPS Methods I

- ❑ ~1600 households in 3 states (NY, CT, MD)
- ❑ Recruited through fliers, advertisements, and targeted mailings to county residents
- ❑ Inclusion criteria
  - Households with  $\geq 2$  residents
  - Freestanding, private property,
  - Lot size  $\frac{1}{2}$  to 5 acres
  - Not within 100 feet of water bodies
  - Not treated in previous year

# Study Locations



## New York

- Dutchess

## Connecticut

- Fairfield

## Maryland

- Baltimore
- Howard
- Harford

## LTDPs Methods II

- ❑ Houses randomized to receive single application of water or bifenthrin
- ❑ Applications between May 1 and June 15 using backpack sprayer
- ❑ Applied to ecotone 10 feet into lawn and 20 feet into brush or wooded areas
- ❑ Post-treatment tick collection and pathogen testing for 10% of properties

# Where the wild ticks are

2%

22%

67%



Stafford, CAES, 2007

# Outcome measures

- ❑ Monthly surveys to ascertain tick bites and ticks found on participants and pets
- ❑ Self-reported tickborne disease during study period
- ❑ Medical record review to validate reported illness

# Timeline 2011

- ❑ Mar - Apr      Enroll and survey
- ❑ May - June      Randomize and treat
- ❑ June - Sept      Monthly surveys
- ❑ Oct - Nov      Final survey, chart review

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*Disclaimer: The findings and conclusions in this presentation are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.*

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[www.betickfree.com](http://www.betickfree.com)

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Diseases Prevention Study**



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